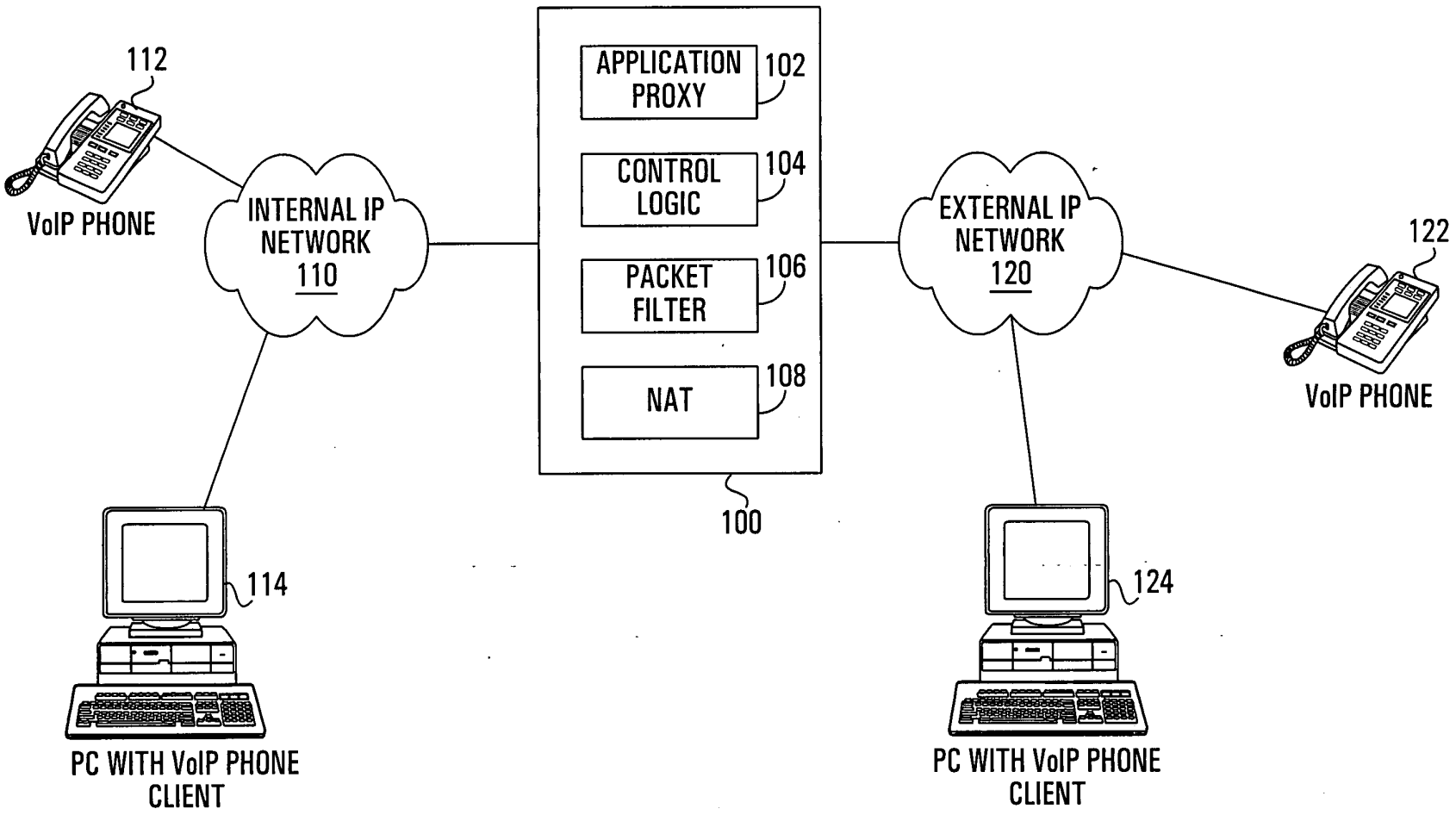
FIG. 1


112
VoIP PHONE
INTERNAL IP NETWORK 110
APPLICATION PROXY
102
CONTROL LOGIC
104
PACKET FILTER
106
NAT
108
100
EXTERNAL IP NETWORK 120
122
VoIP PHONE
114
PC WITH VoIP PHONE CLIENT
124
PC WITH VoIP PHONE CLIENT

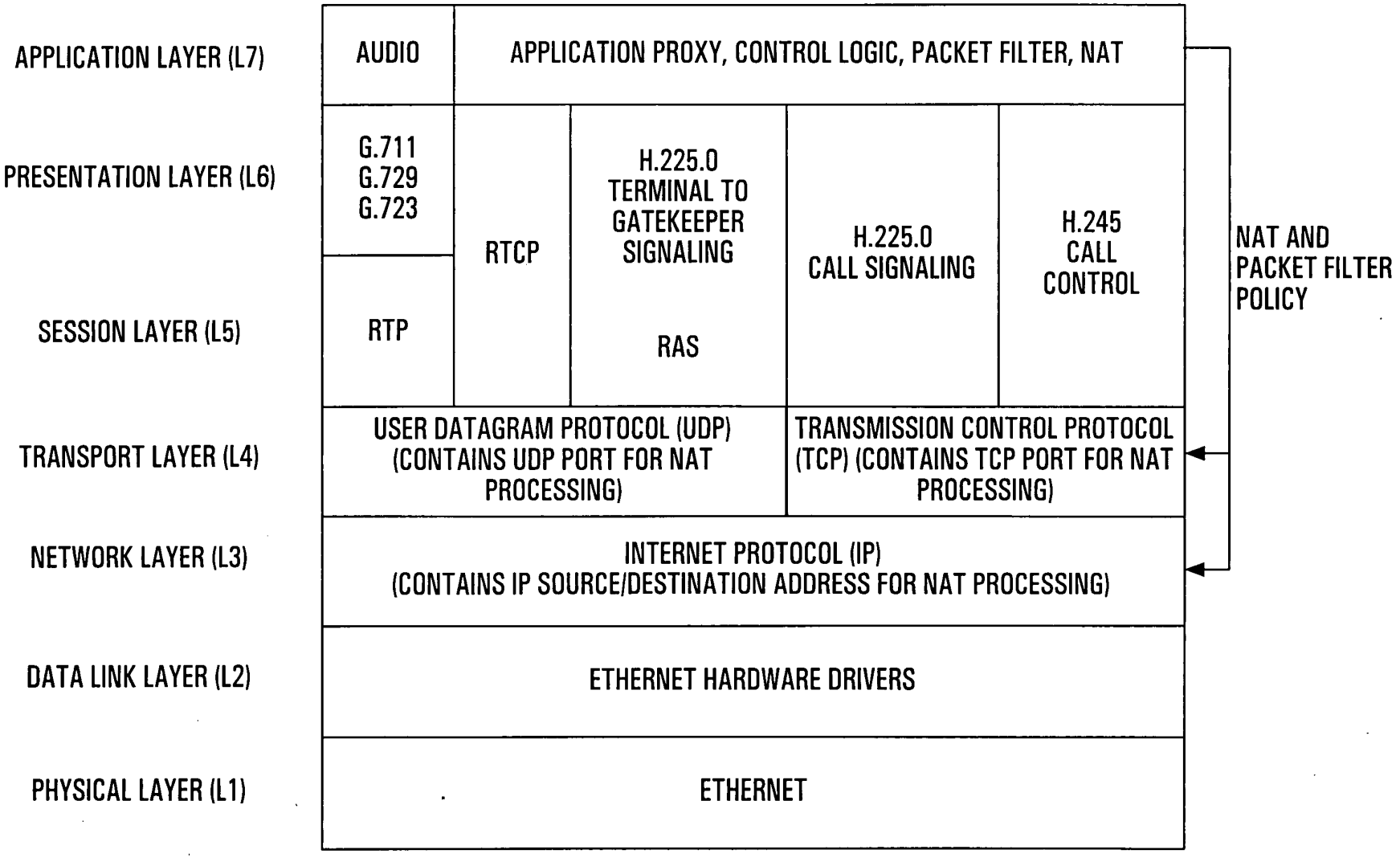

APPLICATION LAYER (L7)
PRESENTATION LAYER (L6)
SESSION LAYER (L5)
TRANSPORT LAYER (L4)
NETWORK LAYER (L3)
DATA LINK LAYER (L2)
PHYSICAL LAYER (L1)
AUDIO
APPLICATION PROXY, CONTROL LOGIC, PACKET FILTER, NAT
G.711
G.729
G.723
RTP
RTCP
H.225.0 TERMINAL TO GATEKEEPER SIGNALING
RAS
H.225.0 CALL SIGNALING
H.245 CALL CONTROL
USER DATAGRAM PROTOCOL (UDP) (CONTAINS UDP PORT FOR NAT PROCESSING)
TRANSMISSION CONTROL PROTOCOL (TCP) (CONTAINS TCP PORT FOR NAT PROCESSING)
INTERNET PROTOCOL (IP) (CONTAINS IP SOURCE/DESTINATION ADDRESS FOR NAT PROCESSING)
ETHERNET HARDWARE DRIVERS
ETHERNET
NAT AND PACKET FILTER POLICY

FIG. 2

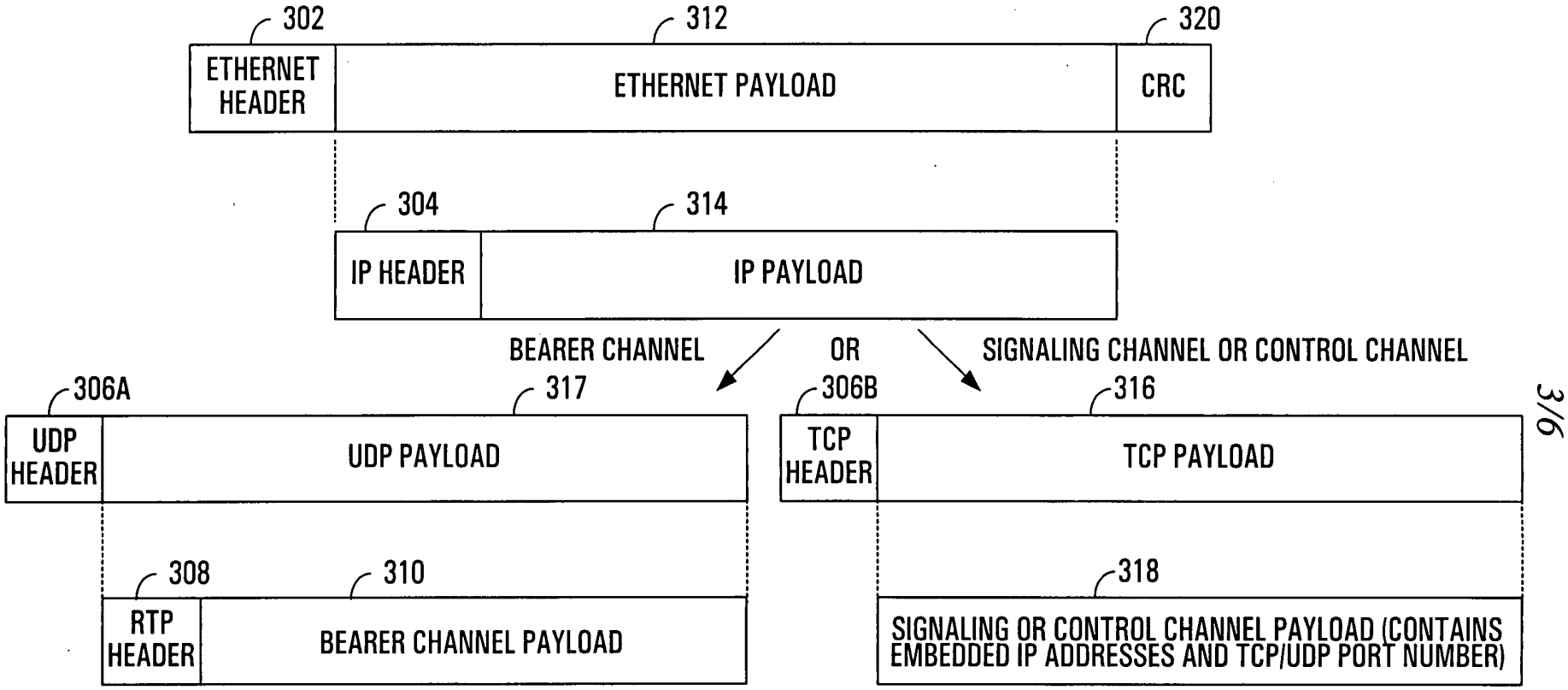

302
312
320
ETHERNET HEADER
ETHERNET PAYLOAD
CRC
304
314
IP HEADER
IP PAYLOAD
BEARER CHANNEL
OR
SIGNALING CHANNEL OR CONTROL CHANNEL
306A
317
306B
316
UDP HEADER
UDP PAYLOAD
TCP HEADER
TCP PAYLOAD
308
310
318
RTP HEADER
BEARER CHANNEL PAYLOAD
SIGNALING OR CONTROL CHANNEL PAYLOAD (CONTAINS EMBEDDED IP ADDRESSES AND TCP/UDP PORT NUMBER)

FIG. 3

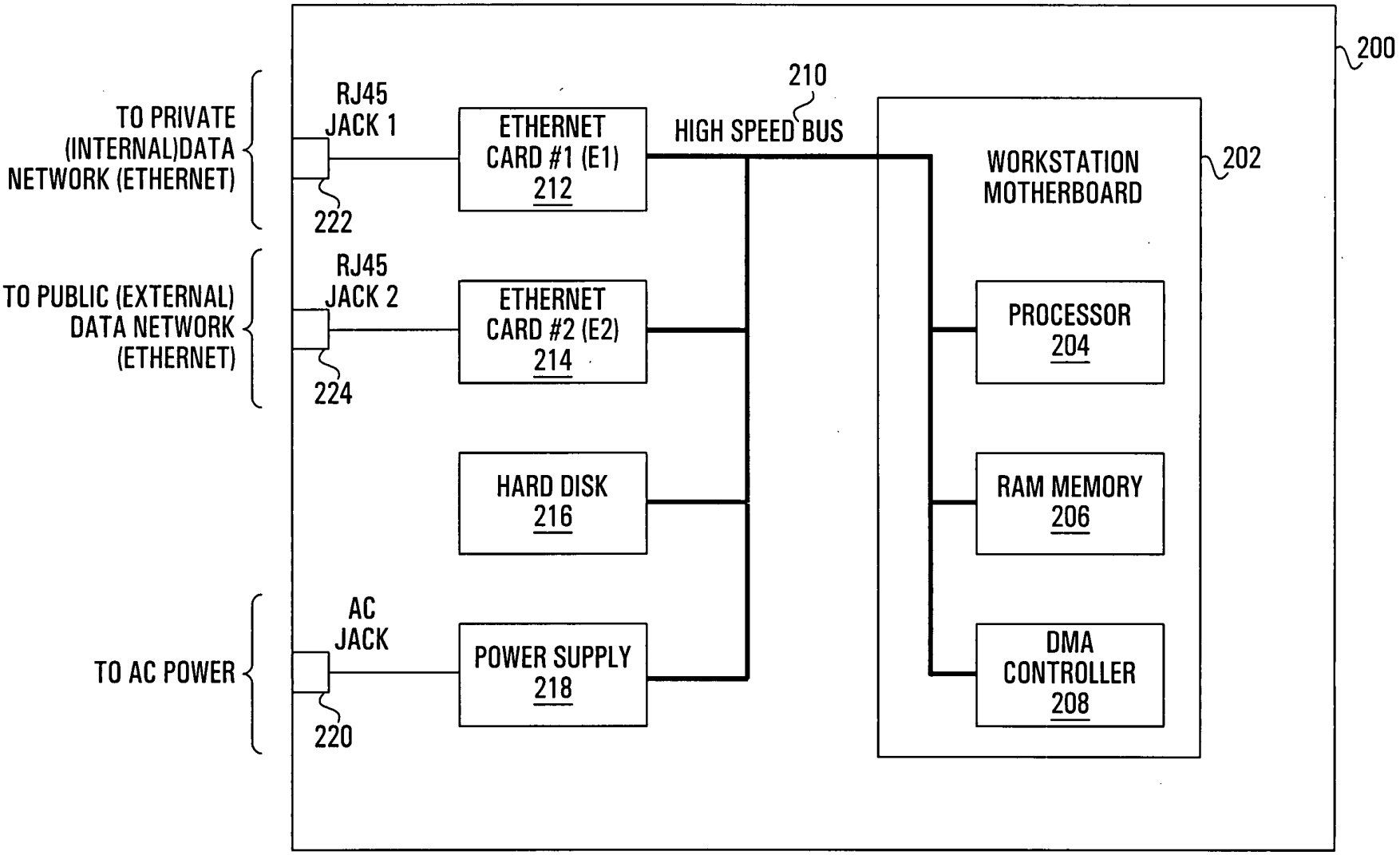

200
210
HIGH SPEED BUS
TO PRIVATE (INTERNAL)DATA NETWORK (ETHERNET)
RJ45 JACK 1
222
ETHERNET CARD #1 (E1) 212
WORKSTATION MOTHERBOARD
202
TO PUBLIC (EXTERNAL) DATA NETWORK (ETHERNET)
RJ45 JACK 2
224
ETHERNET CARD #2 (E2) 214
PROCESSOR 204
HARD DISK 216
RAM MEMORY 206
TO AC POWER
AC JACK
220
POWER SUPPLY 218
DMA CONTROLLER 208

FIG. 4

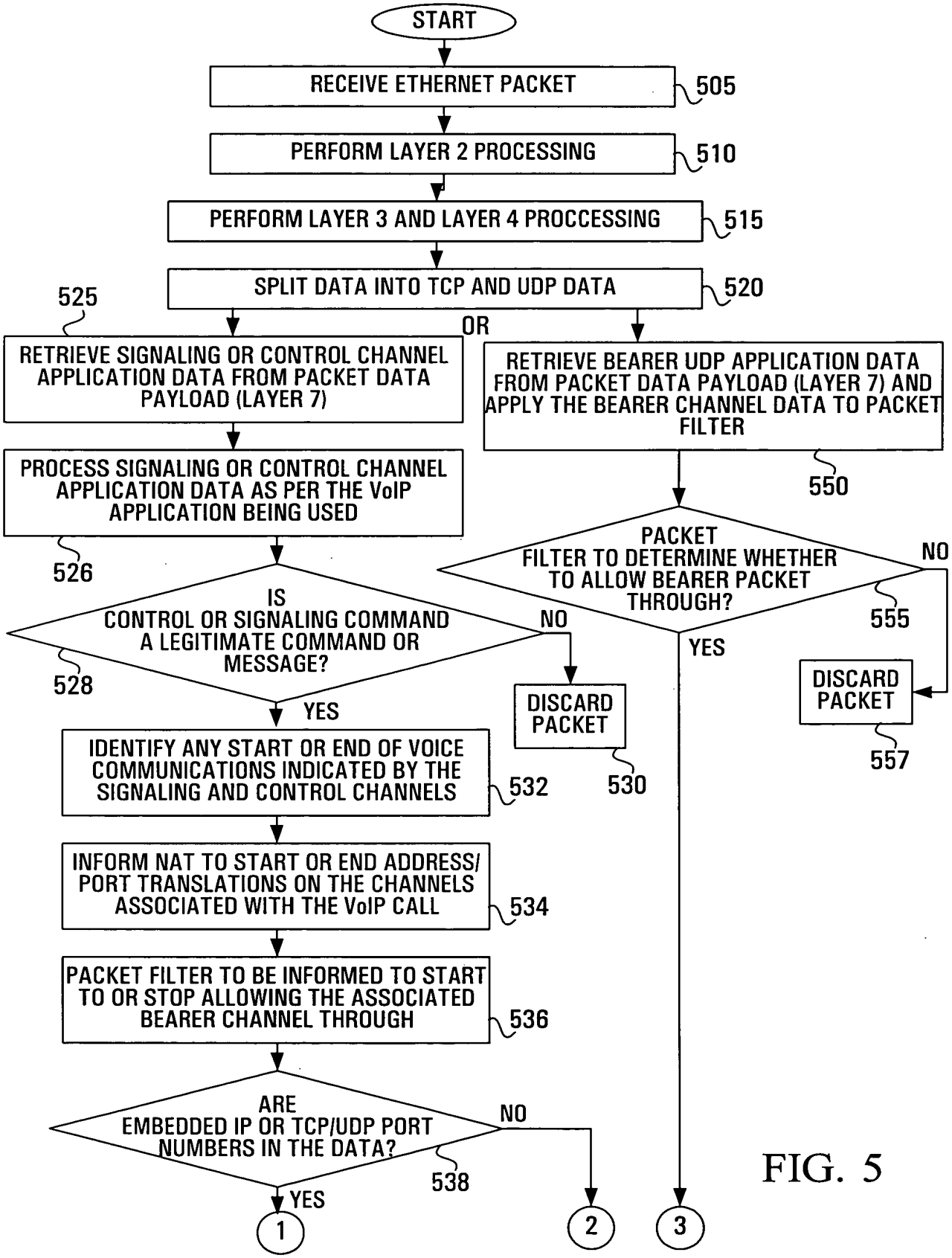


FIG. 5

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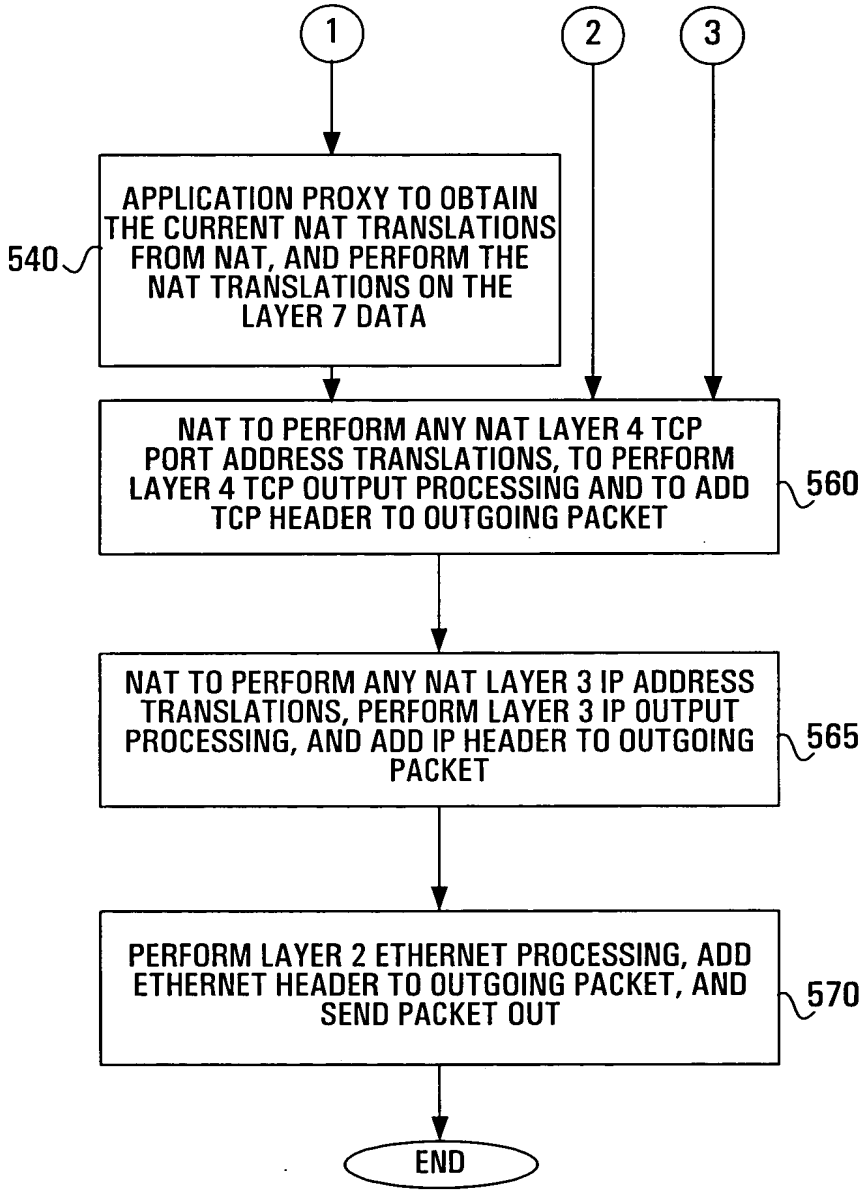

FIG. 5
(CONTINUED)

0090760.0960